

IN THE CLAIMS

Please amend the claims as follows:

1 (Currently Amended). An optical device comprising:

a plurality of high index layers;

a plurality of low index layers;

wherein said optical device is formed by creating alternating layers of said plurality of

high index layers and said plurality of low index layers having a relationship

$$\underline{E_{g,l} > E_{g,h} > hc/\lambda}$$

where $E_{g,h}$ is the band gap of a high index material used in said high index layers, $E_{g,l}$ is the band gap of a low index material used in said low index layers, λ is wavelength of light of interest, h is Plank constant, and c is the speed of light so that electricity and heat is conducted through said optical device.

2 (Original). The optical device of claim 1 further comprising that the index difference between said a plurality of high index layers and said plurality of low index layers is greater than 0.3.

3(Original). The optical device of claim 2, wherein the said plurality of high index layers are Indium Tin Oxides.

4 (Original). The optical device of claim 2, wherein said plurality of high index layers are doped diamonds.

5 (Original). The optical device of claim 2, wherein said plurality of low index layers are doped silicon.

6 (Original). The optical device of claim 2, wherein said plurality of low index layers possess wide band gaps.

7 (Original). The optical device of claim 6, wherein said wide band gaps ensure that the loss in said optical device will be due to scattering off carriers.

8 (Original). The optical device of claim 6, wherein said low index layers exhibit low absorption losses.

9 (Original). The optical device of claim 1, wherein said alternating layers form tunneling junctions between said plurality of high index layer and said low index layers.

10 (Original). The optical device of claim 2, wherein said plurality of high index layers result in large reflectivity over a wide frequency bandwidth.

11 (Original). The optical device of claim 1, wherein said optical device is fabricated by sputtering said alternating layers.

12 (Original). The optical device of claim 1, wherein said optical device is fabricated by bonding.

13 (Original). The optical device of claim 1, wherein said optical device is fabricated by utilizing smart cut technique.

14 (Original). The optical device of claim 1, wherein said optical device is fabricated by utilizing polishing technique.

Claims 15-28. (Withdrawn)

29 (Currently Amended). A Fabry-Perot device comprising:

- a plurality of high index layers;

- a plurality of low index layers;

- a top mirror that includes alternating layers of said plurality of high index layers and said plurality of low index layers;

- a cavity structure that includes a bulk of a selective material; and

- a bottom mirror that includes alternating layers of said plurality of high index layers and said plurality of low index layers;

said high index layers and said low index layers having a relationship

$$\underline{E_{g,l} > E_{g,h} > hc/\lambda}$$

where $E_{g,h}$ is the band gap of a high index material used in said high index layers, $E_{g,l}$ is the
band gap of a low index material used in said low index layers, λ is wavelength of light of
interest, h is Plank constant, and c is the speed of light so that said top mirror and bottom mirror
allow electricity and heat to be conducted through said Fabry-Perot device.

Claims 30-44. (Withdrawn)